

CLAIMS

What is claimed:

1 1. A system which adjusts impedance of a power amplifier system,
2 comprising:
3 a first power amplifier amplifying a communication signal;
4 a bias controller for outputting a control signal, the bias controller coupled to a
5 communication device such that the communication signal is sensed;
6 a second power amplifier responsive to the control signal, such that the bias
7 controller activates the second power amplifier when an amplitude of the
8 communication signal is at least equal to a predetermined amplitude, and such that the
9 bias controller deactivates the second power amplifier when the amplitude of the
10 communication signal is less than the predetermined amplitude; and
11 a prematching impedance network coupled to at least the second power
12 amplifier such that when the bias controller activates the second power amplifier the
13 prematching impedance network adjusts a system impedance to a first value when the
14 first power amplifier is activated, and such that when the bias controller deactivates
15 the second power amplifier the prematching impedance network adjusts the system
16 impedance to a second value when the first power amplifier and the second power
17 amplifier are activated.

1 2. The system of claim 1, wherein the prematching impedance network
2 comprises at least one reactance such that the prematching impedance network adjusts
3 a system impedance to a first phase angle when the first power amplifier is activated,
4 and such that the prematching impedance network adjusts the system impedance to a
5 second phase angle when the first power amplifier and the second power amplifier are
6 activated.

1 3. The system of claim 1, wherein the prematching impedance network is
2 coupled to an input of the second power amplifier.

1 4. The system of claim 1, wherein the prematching impedance network is
2 coupled to an output of the second power amplifier.

1 5. The system of claim 1, further comprising:
2 a first portion of the prematching impedance network is coupled to an input of
3 the first power amplifier; and
4 a second portion of the prematching impedance network is coupled to an input
5 of the second power amplifier.

1 6. The system of claim 1, further comprising:
2 a first portion of the prematching impedance network is coupled to an input of
3 the second power amplifier; and
4 a second portion of the prematching impedance network is coupled to an
5 output of the second power amplifier.

1 7. The system of claim 1, further comprising:
2 a first portion of the prematching impedance network is coupled to an input of
3 the first power amplifier;
4 a second portion of the prematching impedance network is coupled to an input
5 of the second power amplifier; and
6 a third portion of the prematching impedance network is coupled to an output
7 of the second power amplifier.

1 8. A method for adjusting impedance of a power amplifier system, the
2 method comprising the steps of:
3 combining an output of a first power amplifier with an output of a second
4 power amplifier via a coupler that couples an output connection of the first power
5 amplifier with an output connection of the second power amplifier;
6 adjusting a prematching impedance network coupled to the second power
7 amplifier adjusts a system impedance to a first value when the second power amplifier
8 is not actuated; and
9 adjusting the prematching impedance network to a second value when the
10 second power amplifier is actuated.

1 9. The method of claim 8, further comprising the steps of:
2 adjusting the prematching impedance network to a first impedance when the
3 second power amplifier is not actuated; and
4 adjusting the prematching impedance network to a second impedance when
5 the second power amplifier is actuated.

1 10. The method of claim 8, further comprising the steps of:
2 adjusting the prematching impedance network to a first phase angle when the
3 second power amplifier is not actuated; and
4 adjusting the prematching impedance network to a second phase angle when
5 the second power amplifier is actuated.

1 11. The method of claim 8, further comprising the step of coupling the
2 prematching impedance network to an input of the second power amplifier.

1 12. The method of claim 8, further comprising the step of coupling the
2 prematching impedance network to the output of the second power amplifier.

1 13. The method of claim 8, further comprising the steps of:
2 coupling a first portion of the prematching impedance network to an input of
3 the first power amplifier; and
4 coupling a second portion of the prematching impedance network to an input
5 of the second power amplifier.

1 14. The method of claim 8, further comprising the steps of:
2 coupling a first portion of the prematching impedance network to an input of
3 the second power amplifier; and
4 coupling a second portion of the prematching impedance network to the output
5 of the second power amplifier.

1 15. The method of claim 8, further comprising the steps of:
2 coupling a first portion of the prematching impedance network to an input of
3 the first power amplifier;
4 coupling a second portion of the prematching impedance network to an input
5 of the second power amplifier; and
6 coupling a third portion of the prematching impedance network to the output
7 of the second power amplifier.

1 16. A system for adjusting impedance of a power amplifier system,
2 comprising:
3 means for combining an output of a first power amplifier with an output of a
4 second power amplifier via a coupler that couples an output connection of the first
5 power amplifier with an output connection of the second power amplifier; and
6 a prematching impedance network means coupled to the second power
7 amplifier for adjusting a system impedance to a first value when the second power
8 amplifier is not actuated, and for adjusting a system impedance to a second value
9 when the second power amplifier is actuated.

1 17. The system of claim 16, wherein the prematching impedance network
2 means is coupled to an input of the second power amplifier.

1 18. The system of claim 16, wherein the prematching impedance network
2 means is coupled to the output of the second power amplifier.

1 19. The system of claim 16, wherein a first portion of the prematching
2 impedance network means is coupled to an input of the first power amplifier, and
3 wherein a second portion of the prematching impedance network means is coupled to
4 an input of the second power amplifier.

1 20. The system of claim 16, wherein a first portion of the prematching
2 impedance network means is coupled to an input of the second power amplifier, and
3 wherein a second portion of the prematching impedance network means is coupled to
4 the output of the second power amplifier.

1 21. The system of claim 16, wherein a first portion the prematching
2 impedance network means is coupled to an input of the first power amplifier, wherein
3 a second portion of the prematching impedance network means is coupled to an input
4 of the second power amplifier, and wherein a third portion of the prematching
5 impedance network means is coupled to the output of the second power amplifier.

1 22. The method of claim 16, further comprising the steps of:
2 means for adjusting the prematching impedance network to a first impedance
3 when the second power amplifier is not actuated; and
4 means for adjusting the prematching impedance network to a second
5 impedance when the second power amplifier is actuated.

- 1 23. The method of claim 16, further comprising the steps of:
2 means for adjusting the prematching impedance network to a first phase angle
3 when the second power amplifier is not actuated; and
4 means for adjusting the prematching impedance network to a second phase
5 angle when the second power amplifier is actuated.